1. (Currently amended) ~~An apparatus for converting image signals from an interlaced scanning format to a progressive scanning format, the~~ A scan conversion apparatus comprising:

at least one field buffer;

~~a~~ at least one field motion estimator receiving image input of interlaced scanning format from said at least one field buffer, said image input including ~~that estimates field motions between~~ a current field and at least one reference field; ~~fields, said reference fields being prior or next to said current field; and~~

~~a~~ at least one field motion compensator operatively coupled between said at least one field buffer and said at least one field motion estimator, said at least one field motion compensator adapted to restore at least one ~~that restores a~~ missing line of said current field using motion information ~~given from an optimal reference field if said optimal reference field unevenly matches to said current field, said optimal reference field being one of said reference fields having the shortest distance to~~ from an optimally spaced adjacent reference field when said optimally spaced adjacent reference field is unevenly matched to said current field;

at least one linear interpolator adapted to restore at least one missing line of said current field when said optimally spaced adjacent reference field is evenly matched to said current field; and

at least one edge-preserving filter operatively coupled between said at least one field motion compensator and said at least one linear interpolator, said at least one interpolator producing image output of progressive scanning format.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6.   (Currently amended) ~~An apparatus for changing a vertical scanning rate of progressively scanned image signals, the~~ A scan conversion apparatus comprising:

at least one field buffer;

~~a~~ at least one field motion estimator receiving image input of interlaced scanning format from said at least one field buffer, said image input including ~~that estimates field motions between~~ a current field and at least one reference field ~~fields, said reference fields being prior or next to said current field~~;

~~a~~ at least one field motion compensator operatively coupled between said at least one field buffer and said at least one field motion estimator, said at least one field motion compensator adapted to restore at least one ~~that restores a~~ missing line of said current field using motion information ~~given from an optimal reference field if said optimal reference field unevenly matches to said current field, said optimal reference field being one of said reference fields having the shortest distance to~~ from an optimally spaced adjacent reference field when said optimally spaced adjacent reference field is unevenly matched to said current field;

at least one linear interpolator adapted to restore at least one missing line of said current field when said optimally spaced adjacent reference field is evenly matched to said current field;

at least one edge-preserving filter operatively coupled between said at least one field motion compensator and said at least one linear interpolator, said at least one linear interpolator producing image output of progressive scanning format;

at least one frame buffer adapted to store said produced image output and unprocessed image input of progressive scanning format;

~~a~~ at least one frame motion estimator operatively coupled between said at least one frame buffer and said at least one field motion estimator and adapted to generate motion vectors between adjacent image ~~that estimates frame motions between adjacent~~ frames ~~using said progressively scanned image signals and said field motions estimated in said field motion estimator~~; and

~~a~~ at least one frame motion compensator operatively coupled between said at least one frame buffer and said at least one frame motion estimator and adapted to control the size of said motion vectors. ~~that provides a new composite image between said adjacent frames using said frame motions estimated in said frame motion estimator.~~

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7.   (Cancelled)

8.   (Cancelled)

9.   (Cancelled)

10.   (Cancelled)

11.   (Cancelled)

12.   (Cancelled)

13.   (Cancelled)

14.   (Cancelled)

15.   (Cancelled)

16.   (Cancelled)

17.   (Cancelled)

18.   (Cancelled)

19.   (Cancelled)

20.   (Cancelled)

21.   (New) The scan conversion apparatus of claim 6 wherein said at least one frame motion compensator controls the size of said motion vectors based on a ratio of a distance

between a desired frame location and a reference frame location to a distance between said desired frame location and a current frame location.

22. (New) The scan conversion apparatus of claim 21 wherein said at least one frame motion compensator is adapted to produce composite image output between adjacent frames.

23. (New) The scan conversion apparatus of claim 22 wherein said at least one linear interpolator and said at least one frame motion compensator are adapted to produce image output in at least one order, said at least one order resulting in a moving image of a vertical scanning rate being different from the vertical scanning rate of progressively scanned image signals being stored in said at least one frame buffer.

24. (New) A scan conversion apparatus comprising:
at least one field buffer;
at least one field motion estimator receiving image input of interlaced scanning format from said at least one field buffer, said image input including a current field and at least one adjacent reference field;
at least one field motion compensator operatively coupled between said at least one field buffer and said at least one field motion estimator, said at least one field motion compensator adapted to restore at least one missing line of said current field using motion information from an optimally spaced adjacent reference field when said optimally spaced adjacent reference field is unevenly matched to said current field;
at least one linear interpolator adapted to restore at least one missing line of said current field when said optimally spaced adjacent reference field is evenly matched to said current field;
at least one edge-preserving filter operatively coupled between said at least one field motion compensator and said at least one linear interpolator, said at least one linear interpolator producing image output of progressive scanning format; and
at least one frame buffer adapted to store said produced image output and unprocessed image input of progressive scanning format.

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